



ICI MAGAZINE



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Contributors

Denzil Batchelor is one of England's foremost sporting writers. A former sports editor of *Picture Post*, he is now a freelance writer of sports features and a radio and television broadcaster. Is also an authority on food and wine, and his present article on the trials and tribulations of rotundity will make poignant reading, we feel, for all ICI heavyweights.

George Bridger, catalyst section manager of Billingham's Project and Process Research Group, has been concerned with the use and manufacture of catalysts and with research on them for ten of the twenty years he has been with Billingham Division. He is married and has three children. He is interested in most of the arts, plays the violin and is a keen photographer.

W. S. Bristowe, author of *The Desertas in Sunshine and Mist*, is retiring at the end of the year after 14 years as head of the Central Staff Department. Is an acknowledged authority on spiders and earlier this year was presented with the Zoological Society of London's Stamford Raffles Award for his contributions in this field. Previous articles in the *Magazine* cover, besides spiders, such diverse subjects as athletics, giants and Sherlock Holmes.

Peter Lawrence of Paints Division's Publicity Department follows up his recent article on the aftermath of the Norwich Experiment with a survey of past and a cautious guess at future trends in the home decorating business.

Robin Penfold, now commercial editor of "British Plastics," was until the end of last month a member of the Publicity Department of Heavy Organic Chemicals Division, where he was particularly concerned with press relations.

Jack Williams is national secretary of the Chemical and Allied Trades Group of the Transport and General Workers Union. Originates from South Wales, but went to the Midlands in 1936 to work in the engineering industry. He was appointed district organiser of the Union for the Birmingham area in 1945. In 1956 he was made Engineering and Chemical Regional Trade Group secretary for the Midlands area and district secretary of the Engineering and Shipbuilding Confederation. In 1960 he came to London on his appointment as national secretary of the Chemical and Allied Trades Group.

Cover

Night scene at Billingham Oil Wharf. A tanker prepares to sail with a bulk export cargo of ICI plasticiser alcohols

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On Clare Bridge, Cambridge, by A. David Baume (a vacation student at Wilton)



George Bridger



Robin Penfold

A New Year Message from the Chairman

1962 has been an eventful year for the Company and one in which various actions taken by or on the authority of the ICI Board must inevitably have caused a certain amount of heart-searching among employees of all ranks. For this reason I am taking advantage of this year-end issue of the *Magazine* to thank you all for your help during this admittedly difficult year, and to try to put the various actions we have taken into proper perspective.

All these measures, including the efficiency drive and the engagement of McKinsey & Co., the management consultants, to advise the Board on organisation, stem from one root cause, namely the very significant change in the economic climate of chemical industries throughout the world. This change can also be seen in other industries. The period of post-war shortages is now over, increased costs cannot be met by increases in selling prices, and the substantial world over-capacity in many branches of the chemical industry which exists today may well be with us for some time. In these circumstances we, in common with other industries similarly affected, have to make radical changes to ensure that by our growing efficiency we can hold our own in the new and harsher conditions of world trade. It is no longer justifiable to take expensive precautions in design of plant, in maintenance or operation, solely to ensure the last ton of production. Instead we have to aim at low-cost production in less expensive plants which will normally be working somewhat under their designed capacity. We must be ready to make organisational changes and to adopt without delay new processes and techniques if by so doing we can reduce costs of production. We are convinced that we can do this and are determined to do so.

However, it is only natural that some people have been wondering whether other interpretations could be placed on the various actions taken by the Board. Perhaps I could best help to dispel these fears by stating, quite categorically, some of those things which these actions do not imply.

First, they do not mean that the Company is making ruthless and hasty economies in pursuit of a short-term improvement in

its profits. On the contrary, the Board regard the long-term view as of far greater importance, as evidenced by their decision to establish the new petrochemical and polymer laboratories and to increase their expenditure on research.

Secondly, there has been no fundamental change in the Board's policy towards its employees. They have always been alive to the human problems of industry and appreciate that the continuing welfare of employees is as important as satisfying customers or stockholders. It would be wrong to deny that the efficiency measures which the Company is taking do not involve some redundancies at all levels. The Directors are deeply conscious of the human problems involved, and this aspect has caused them much concern. However, once the main organisational changes and redeployment have been completed, I am confident that the effects of these will be broadly balanced by the increased requirements from the Company's new activities. In the long run, increased efficiency must mean more stability and greater opportunities for the Company's employees.

Thirdly, these actions do not in any sense imply that the Directors are at all pessimistic about the Company's future. Already in various parts of the Company it is apparent that, with this new outlook, the opportunities for new activities and new business are considerably greater and brighter than we had believed likely a short time ago. I sense that the morale in these parts of the Company is higher than ever and am convinced that this is something that will spread.

The half-year's results have already dispelled some of the doubts both inside the Company and outside, and, in wishing you all a happy and prosperous New Year, I do so confident that the years ahead will provide ample evidence that ICI is as worthy of its high reputation as it has ever been in the past.

Paul Chambers

IN BULK TO EUROPE

Robin Penfold

As Heavy Organic Chemicals Division's distribution staff see it, the Tees just about flows straight into Europe, whose waterways and other communications are becoming so familiar that the North Sea is a sort of marine M1 to these vital markets.

Whether we go into the Common Market or not, Europe will continue to be the area of paramount importance for HOC Division's exports of petrochemicals, already a multi-million-pound business. And a key to success in this field—among other sales aspects—clearly involves bettering the local manufacturer by delivering the goods economically and quickly.

Economy in this sense means keeping transport costs down to the minimum, and this in turn is predominantly a matter of making the "package" as large as possible. The ideal is shipping in bulk direct from the factory to the customer's doorstep without breaking down or transshipping the "package"; this reduced handling also makes it easier to maintain the high purity of the product throughout its journey.

Since only a limited proportion of European customers are geographically placed to receive large seaborne cargoes direct, many of the really large bulk shipments go into one or other of the depots which HOC has set up at strategic points—at Dordrecht, Basle, Copenhagen and Malmö. These forward storage points also enable the Division to meet the other requirement, of speed, since from them orders can be met by road, rail or, in appropriate cases, barge consignment, depending on which offers the best combination of rapidity and convenience.

This business of bulk distribution is obviously most readily applicable in the case of liquid chemicals, and the more stable they are, the better. A high proportion of HOC exports do in fact fall into this category—the plasticiser alcohols, for instance—but some are solids, while others are gases in their normal state, or otherwise present special problems or even hazards of transportation which have to be overcome by highly individual treatment for each case. So it must not be forgotten that the relatively unglamorous drum traffic is still a most important facet of the Division's exports, while at the other end of the scale some highly sophisticated and novel methods have been evolved—in fact, it is true to say that some of the products could not now be offered on the European market at all had not a lively and open approach been adopted towards their shipment.

The tankers which ply between Billingham Oil Wharf (or, for Wilton products, Teesport) and Europe are chartered by HOC from continental owners and never carry any cargo other than chemicals. So stringent are the requirements of chemical

The spheres for liquefied petroleum gases are well shown in this view of the special-purpose Danish tanker "Signe Tholstrup," seen loading a cargo of Wilton butadiene at Teesport

TOP: One of the larger type vessels for the carriage of liquefied petroleum gases—the "Lili Tholstrup" at West Hartlepool. BOTTOM: M.T. "Cornelis Broere" transfers the cargo of para-xylene which she has brought from Teesport into a special Rhine barge at Dordrecht for its onward journey into Europe





cleanliness that HOC wants to know a ship's history of cargoes before chartering it—if it has been used for carrying, say, fuel oil, it would not be acceptable. In addition, samples are continually taken for immediate analysis while the ship's tanks are filling to check that the product is not being contaminated.

Para-xylene (used for 'Terylene' manufacture) provides a good example of a rather difficult product which is now shipped to European licensees as a matter of course. The first shipment, in 1959, was a highly successful experiment that showed the way. The difficulty is that para-xylene solidifies at normal air temperatures. Therefore at all necessary points between Wilton and the customer's wharf on a European waterway, hundreds of miles from the sea, steam heating had to be provided to make the product liquid, and the operation involved a transshipment from the tanker that took the para-xylene across the North Sea from Teesport into a special Rhine barge that came alongside at Dordrecht. The product arrived in perfect condition, as it does today.

Special, too, is the Danish tanker *Signe Tholstrup*, her big sister *Kirsten Tholstrup* and the other 15 vessels of the Kosangas fleet that carry liquefied petroleum gases in large spheres under considerable pressure and which HOC use for the butadiene traffic. Butadiene, a raw material for synthetic rubber, is a highly inflammable material and needs great care in its handling.

It is the practice of the Division to provide the masters of ships carrying its products with the Company's house flag, so that the ICI roundel goes at the masthead past the Lorelei or through the Kattegat. It is seen, too, with the Divisional title in HOC's own "house colour" of Afghan red on its fleet of rail tankers which run both at home and all over Europe—and between the two on the Harwich-Zeebrugge train ferry. Watch out for them on your next continental holiday, perhaps at the port or in some Alpine marshalling yard. If you are close enough, take a look at the patchwork of labels, representing dozens of frontiers crossed, on the destination board. They will tell you the HOC European export story more vividly than words.

TOP, LEFT: A general view of the bulk storage depot at Dordrecht. (Photograph by courtesy of Gebr. Broere n.v.) BOTTOM, LEFT: The HOC fleet of rail tankers run all over Europe. Some of them are seen here at Antwerp. TOP, RIGHT: Harwich. The Harwich-Zeebrugge ferry is used for moving HOC products in rail tank loads between Britain and Europe. BOTTOM, RIGHT: The loading of liquid chemicals from road or rail tanks into ships' holds at docks where pumping equipment is not to hand is made easier by the use of this portable pump unit, mounted on a Land-Rover, developed by HOC Division



Trends in Colour

Peter Lawrence

This is the second in a series of articles which the *Magazine* hopes to publish on current trends in trade and industry



Colour performs two tasks at Chapel Cross Nuclear Power Station: the identification of pipes and allied equipment from the Reactor House (ABOVE, LEFT) through to the Turbine Hall (BELOW, LEFT), and the provision of a pleasantly balanced but invigorating environment

The use of contrast colours in the schoolroom at Woodside (ABOVE, RIGHT) follows the example of the "Hertfordshire Experiment." In the College Library at Widnes College of Further Education (BELOW, RIGHT), pastel colours have been employed to provide a quiet atmosphere

Only the very rich or extremely idle can have escaped the clutches of "do-it-yourself" with its Boy-Scoutish undertones of honest toil and endeavour. There are very few things that the modern Good-Man-About-The-House cannot attempt, from the wholesale repair of Victorian houses to the assembly of coffee tables, sportingly pulled apart by the manufacturers.

But of course, "do-it-yourself" is not a modern phenomenon, the real difference between now and many years ago is that the habits of Modern Man are scientifically observed and analysed; what the observers (sometimes known as manufacturers) are looking for, are not merely his present habits, but his future ones. These, they call trends.

One of the most familiar of the "do-it-yourself" trends is the growth of the amateur decorator. Brought about partly by the rising cost of professional decorators and partly by technical improvements in modern paints—especially in colour ranges and application—this particular sub-section of the "do-it-yourself" movement has been characterised by a fascinating change in colour choice, for colour has now largely superseded protection as a prime mover in the choice of paint.

Before the last war, as many readers will remember, little attention was paid to the choice of colour. Much domestic decoration was in a direct line of succession to the less attractive aspects of Victorian design with its overpopulated wallpaper supported by the drabdest of paint colours. "Cleaning the place up" usually meant employing colours which "didn't show the dirt"!

On the few occasions when brighter colours were introduced the choice was usually restricted to a brightish green or pink for the upper half of a wall, the lower half a respectable brown or deep green which took the grubby handmarks and the kicks. Not infrequently a black 1½ in. band intervened. Moving with the spirit of the times perhaps, the war, and its immediate aftermath, produced a liking for greys (light and dark Admiralty) and buffs and beiges of approximately ration-book standard. In the uneasy peace of the late forties the public took its first steps along the path of colour emancipation with a distinct preference for brighter colours, though influenced to some extent by the greens and creams of pre-war days.

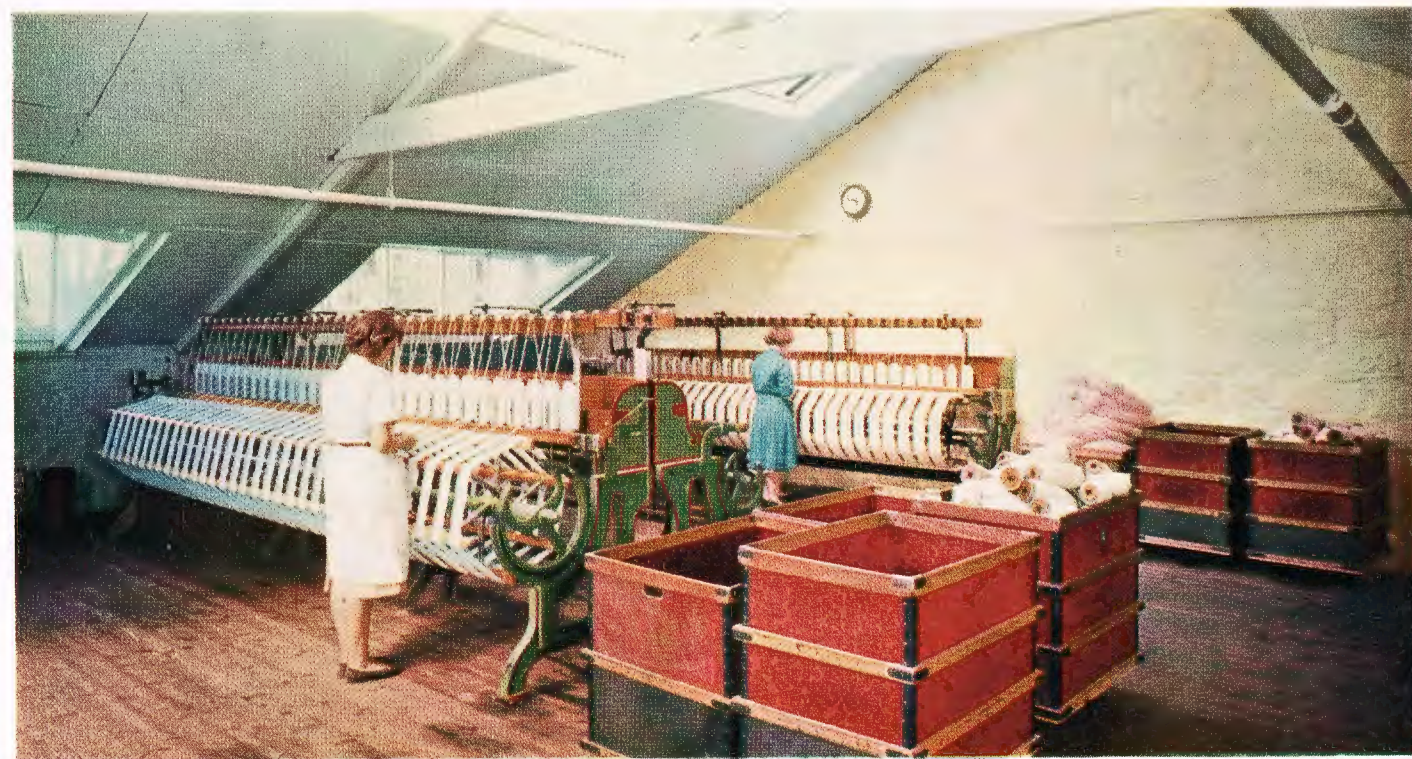
At this time, paint manufacturers, beginning to be freed of wartime restrictions were able to apply the knowledge which they had gained in the intervening years, and new dyes and pigments opened up the way for larger colour ranges in a wider field of products. With a bigger choice available to them, public interest quickened and the "do-it-yourself" movement gained impetus.

Trends, until this time were not very well defined. Changes in colour taste were rather slow, and little significant movement could be observed except over longish periods. Now, preferences



TOP: A wool mill at Guiseley, Yorkshire, decorated in the prevailing taste according to a scheme suggested by Paints Division Colour Advisory Department

BOTTOM, LEFT: Today's cars reflect the prevailing preference for light colours. BOTTOM, RIGHT: The popularity of black has steadily declined over the last 10 years



began to change comparatively rapidly. This was a period in which pastel colours (as distinct from light shades of primary colours) began to be popular, with a minority trend towards the more sophisticated deep colours which were mostly used for contrast on small areas.

The popularity tables for the mid to late fifties years showed a continued loyalty to cream and off-white (which some consider a cream). Even here the trend was towards lighter, cleaner creams than hitherto, and this has, more recently, given way to a clear preference for white, whose "lead" has increased substantially now for the last three years, leaving all other colours at a standstill.

This does not necessarily mean that we have reached the age of "no colour"; it is a logical outcome of the growth in popularity of pale colours. Some experts, notably Stanley Wood, Chief Colour Advisor of Paints Division, see the immediate future rather in terms of the very pale off-white tints than of pure whites. Assuming that white is the ultimate, this forecast seems reasonable, as the only way the colour pendulum can now swing is backwards.

It is reasonable too when one considers the place of paint in the home. Paint is not nowadays (if indeed it ever was) the most important feature of a room. The cost and design of present-day furniture, fabrics, carpets and even wallpaper relegate paint to a secondary, supporting role. Whether one's taste in furnishings is for neo-Georgian or "ultra-mod," paint is obliged to remain quietly in the background. Thus an important consideration for those who try to assess colour trends in paint is the current taste in fabrics and papers with their multiplicity of bold, sometimes hectic colours arranged into a great variety of patterns.

Obviously, manufacturers, whose livelihood depends on a correct estimate of the public's choice of colour, pay a great deal of attention to the ways and means of finding out what this choice is, but, so far, little is known of the sources of influence. In the paint world there are no obvious "trend setters" or fashion leaders in colour choice other than the manufacturers themselves—but there are many important influences which probably play their part.

The modern architect is undoubtedly one such influence. Most architects since the war have been more conscious of the value of colour treatment in large buildings, thus many civic buildings, hospitals, factories, office blocks and even churches are now designed to allow colour to play its proper role.

One of the early examples of this influence took place in Hertfordshire shortly after the war, when, owing to the shortage of schools and the bulge in the birth rate, new unit-construction school buildings were used. These stark, uncompromising buildings obviously required a new conception in colour treatment. The result was the first large-scale use of contrasting colours. The "Hertfordshire Experiment", as it became known, attracted the attention of architects all over the world and was widely copied.

There are literally thousands of goods on which paint is used and where colour is important. Few of them, however, are subject to changing fashions—refrigerator and washing machine manufacturers, amongst others, play safe by producing most of their goods in white or off-white, correctly assuming that these colours will suit most kitchens. One important exception to this rule is the car.

Colour trends in cars have little connection with colour choice in the home, but, nevertheless, they reflect personal preference,



Colours which didn't show the dirt

allowing for the fact that the Motor Manufacturers are obliged, owing to production costs, to restrict the range of choice to a comparatively few colours. Paints Division's annual analyses of colour trends at the Motor Show make interesting reading.

Although there have been some fluctuations in the fortunes of individual colours, black has steadily declined in popularity from about 11% in 1953 and 1954 to 2.5% in 1962. Duo-tone finishes have remained fairly static during the last five years, although the colour combinations have varied. Last year greys, creams and greens predominated in the single-colour group.

It may be that this liking for quieter, lighter colours has some connection with the current desire for white in the home, but it is a tenuous one—the circumstances of choice are fundamentally different, and, in any case, one cannot imagine that white cars would be very desirable from a safety or an aesthetic point of view—nor are there enough Sunday mornings in the average winter week to keep it white!

The changing trends in colour will continue to fascinate those whose job it is to satisfy this constantly shifting demand but much of our colour consciousness is (dare I say it?) coloured by quite illogical considerations to which we cannot often give expression. In the end it is a matter of taste.

Research into colour preference continues without yielding the magic name of next year's OK colour. Even the one thing that has been established brings little comfort—paint colours are usually selected by the female sex.

The Signatory Trade Unions:

This is the second in a series of articles dealing with the principal trade unions with which ICI has signed agreements



Mr. Jack Williams in his office at Transport House

The Transport and General Workers' Union is the largest of all the British trade unions. How it came to be what it is today represents a most interesting piece of British social history and takes one back to the mid-nineteenth century years when the unskilled worker, as distinct from the skilled or craft worker, was for the most part entirely unorganised and therefore at a very great disadvantage when it came to improving his working conditions or defending himself against even the harshest and most arbitrary of employers. The craftsmen of those times were a little better off. They had the advantage of possessing skills which could only be acquired after lengthy periods of training. They could, by imposing conditions on the recruitment and training of apprentices, exercise some sort of control over the supply of labour. The unskilled workers were in no position to exercise any such control. Being unskilled, they were in competition for jobs not with a limited number of their own kind, as were the skilled workers, but with the working class at large.

The advantages of organising themselves, in such circumstances, were not lost upon the unskilled workers, as many efforts at self-organisation of one kind or another bear witness. What defeated them, even when they succeeded in forming some kind of association, was that they could not hold their organisations together, for the whole current of public opinion, and not only public opinion, the law itself, was against them. Moreover the unskilled worker of those days suffered usually from the lack of the means of educating himself. A proper system of State schools only began in 1870, and nobody would pretend that the education which at first they were able to provide was anything to be proud of.

To be successful, the organisation of the unskilled workers

needed to be in the nature of a mass-movement. Sporadically in the nineteenth century attempts were made in this direction, as for instance in 1834, when Robert Owen helped to launch an organisation on a national basis called the Grand National Consolidated Trades Union. This included workers of all trades and grades, including agricultural and even women workers, but the opposition into which it ran on every side gave it but a short existence.

The next large-scale attempt at an organisation came half a century later and arose out of the great dock strike of 1889. This prolonged and bitter struggle, although confined to the London area, had repercussions throughout the working class everywhere. Resulting from it a large number of new unions sprang up, involving thousands of members altogether, and these new organisations, unlike their predecessors, managed to survive.

There is no doubt that the successful extension of the trade union principle from the skilled to the unskilled workers had a

The late Ernest Bevin



The T. & G.W.U. | Jack Williams

profound effect and swung the real balance of power within the Labour Movement as a whole for the first time away from what has been called the aristocracy of labour—the highly skilled craftsman and his kind—into the hands of the big battalions of the rank and file of the movement, where it has since remained. Furthermore, almost without exception, the leaders of the new unions were ardent Socialists, and they it was who influenced the Trades Union Congress—hitherto politically uncommitted—to espouse the cause of an independent Labour Party. All of this was around the turn of the century. As time went on, a movement began to consolidate the rather large number of these new unions into a single and more powerful whole. A further argument was that since many workers habitually changed from one industry to another—many gas stokers, for example, moved into the docks during the summer months—differentiations tended to be artificial and the idea of “one big union” seemed not only logical but practical.

Many attempts were in fact made to achieve this end. For one reason or another none of these were wholly successful, and much overlapping and competition between unions for members continued, although concurrently there were successful amalgamations. The Great War of 1914–18 further encouraged this movement towards amalgamation, but the real architect of the great merger which resulted in the creation of the present Transport and General Workers' Union was unquestionably Ernest Bevin. Ernest Bevin had been Assistant General Secretary of the Dock, Wharf, Riverside and General Workers' Union. His brilliant handling of the dockers' case before the Court of Enquiry in 1920 (at which the dockers succeeded in winning a minimum guaranteed wage, the principle of decasualisation of dock labour accepted, and negotiating machinery on a national basis for the docks set up) had won him not only the unofficial title of “the dockers' KC,” but all the glamour of a notable victory in the field centred on his personality as well.

Armed with this, Ernest Bevin set about the task of forming the “big union” of so many dreams with a will. The undertaking was by no means simple. A conference of 19 unions was held in London on 1st December 1920. Thereafter a ballot vote of all members had to be taken. Not only this, but by the terms of the recently enacted Trade Union (Amalgamation) Act of 1917, before an amalgamation could be carried through at least 50% of each union had to vote, and of this voting a favourable majority of not less than 20% had to be recorded. Not all of the participating unions in fact achieved this majority but fourteen managed to do so, among which were all the main Docks and Road Transport Unions with the exception of the Liverpool Dockers' Union, which joined later.

The new Union began on 1st January 1922. Its principal officers, elected by ballot, were: President, Harry Gosling of the



The General Secretary, Mr. Frank Cousins

London Watermen's Union; General Secretary, Ernest Bevin; Financial Secretary, Stanley Hirst of the United Vehicle Workers' Union.

Its constitution differed from that of any other existing British trade union in that it had a twofold form of organisation—both Regional and Trade. This method enabled the Union to act as the responsible negotiating agent for a number of separate trades while allowing all the members, irrespective of occupation, to benefit from a common service of benefits.

At the beginning, the Union was divided into six main groups: docks; waterways, including fishing; administrative, clerical and supervisory; road passenger transport; road commercial transport; and general workers. Other groups were formed as time passed, such as the power workers in 1926, the engineering workers in 1931, and so on. Latest to be added, and of particular interest to readers of the *Magazine*, was the Chemical and Allied Trades Group, which was set up in 1953.

The chemicals industry has two main bodies, heavy chemicals—such as the alkali or soda industry—and fine chemicals and drugs. The T & G W Union has membership in both branches, but its main strength is in the former. In all there are now around 54,000 members of the Union in the chemicals industry. The present secretary of this Chemical Trade Group in the Union is the author of this article, and very stimulating and challenging he finds that post to be!

What may be called the government of the Union, which is another name for its central authority, is the General Executive Council. It is a lay body which meets for five days every quarter. Full-time officers of the Union who attend have an advisory role



The new Regional Headquarters at Bristol

The entrance to Transport House in Smith Square, London, which houses the Headquarters of the Union

only, though they include the General Secretary and others of the most senior rank. The lay members are territorial representatives (elected by ballot from the Union's membership on a territorial basis); others are elected from the trade groups, each trade group committee electing one member. Thus the dual character of the union, previously referred to, is reflected in the constitution of its Executive Council. The GEC, as it is usually called, supervises the whole of the Union's day-to-day work. It watches over wage movements, deals with administration, finance, and the officering of the Union, endorses the Union's Parliamentary candidates, and so on. It also forms an important Appeals Tribunal, deciding all appeals against decisions of the Regional Committees, including questions of benefits.

The GEC itself works within a framework of high policy which is worked out by the Biennial Delegate Conference, which meets, as its name implies, every two years and lays down what is to be the Union's general policy as well as receiving a report of the work of the GEC for its approval.

Changes in the Union's rules are made by a Rules Conference which normally meets every six years and is composed of lay delegates directly elected from the membership.

The Transport and General Workers' Union, as might be expected of so large and diversified an organisation, has had its full share of controversies, both internal and external. It is frequently criticised by the Press, and others who do not always trouble to acquaint themselves with the facts about its constitution and administration, for being "unwieldy." Its leaders, similarly, from time to time are taken to task in the same quarters for being out of touch with their rank and file. This kind of suggestion is not entirely unknown, I imagine, in respect of your own great organisation! The proof of the pudding, as always, is in the eating. True, there have been occasional conflicts of opinion and interest within certain groups of the Union, but for the most part its story has been one of steady growth, both of membership and influence.

Throughout its existence the T & GWU has been fortunate in having men of outstanding personality and ability for its General Secretaryship. Starting with Ernest Bevin, whose stature, both as a trade unionist and later as a Minister of the Crown, grows ever greater as the years pass; to be followed by Arthur Deakin, a man whose name commanded respect from both sides of industry and throughout the trade union world; and having as its present occupant Frank Cousins, there can be little doubt but that the Union has had as its chief spokesmen men to whom the country has been prepared to listen.

The T & GWU was a pioneer in the sphere of education for its membership and claims that even now the trail which it first blazed is only being followed by other unions, though happily here is a field in which competition does not mean rivalry.



An evening class for members in progress in London. The Book Box Lending Library in the foreground is a useful feature of these classes

Since 1939 about 12,000 members have taken a three-stage home study course on the Union, its work and its problems; among them some who today are national, regional or district officers.

Free correspondence courses organised by outside bodies in 51 different subjects are also available. They include courses for branch officials, as well as in law, economics, industrial relations, government, politics, history and the social sciences.

The Union also organises day and weekend schools; evening classes have been arranged with the WEA, and there are special one- and two-week courses each summer for branch officials. Some of these officials also go on to the TUC Training College in London for further residential courses, and scholarships are also provided by the Union to enable suitable members to take one-year full-time courses in trade union studies at Ruskin College, Oxford; Coleg Harlech (North Wales); Fircroft College, Birmingham; Hillcroft College, Surbiton; and the London School of Economics.

The days are far removed when the ordinary worker had little or no voice in his own destiny and was both ignorant, powerless and unorganised. Indeed, the transformation in his lot today is so complete that it is only by looking back that the measure of what has been accomplished for him can be taken. It is also by looking back that we can often derive inspiration for looking forward, and I like to think that the T & GWU looks backward only when to do so is to mirror its vision of the future.

Company Secretary

Anyone who knows the Secretary of the Company only from that rather bleak signature at the bottom of official communications—"by order of the Board: A. G. Woods, Secretary"—may be forgiven for imagining him as a desiccated Galsworthian lawyer, complete with cravat and pince-nez. This hallucination is dispelled instantly by encounter with the real George Woods—a genial, youngish-looking man, conveying a pleasant impression of informality, who came to this job by way of Trinity College, Cambridge, a solicitor's office, the Surrey County Council and the Alkali Division.

The post of Secretary has the reputation of being the loneliest one in ICI. Repository (as the title implies) of secrets, confidant of members of the Board, legal personification of the Company for many purposes, George Woods stands in a unique—and some people might think unenviable—position. But you would have to look far to find a man with a more obvious relish for his work.

Much of it consists of performing, with meticulous accuracy, the thousand and one routine tasks demanded of a secretary. He conducts the Company's formal relations with its stockholders and with the outside world; takes responsibility for the work of the Registrar's Department; signs and seals official documents; sees that the annual report is punctually and properly presented; attends meetings of the Board and makes sure that all the necessary business is laid before it and recorded. Every week of the year—every day almost—there is some vital item on the Secretary's calendar.

Without delegating some of this work the Secretary could never do justice to other aspects of his job. There is the vast unmapped territory that comes under the heading of "general administrative work," for example. Most other people in ICI have their responsibilities and terms of reference conveniently cut and dried; the Secretary's are apt to change almost from day to day, and he has to be prepared to advise almost anyone about almost anything that does not come within the scope of any other single department. Administration calls for a special kind of talent and, for anyone without the itch to be an executive giant, brings its own kind of satisfaction. George Woods observes

without rancour that as an administrator he rarely has the satisfaction of seeing a job through to its conclusion. But by giving a word of advice here, a timely warning there, or help with the detailed drafting of a document, he speeds many pieces of business on their way.

All sorts of people come to him for advice—not excepting members of the Board. His knowledge of *how* things should be done is much sought after. He knows, probably better than anyone else, the best route through the administrative machine, and whether the machine can be by-passed or whether the authorised channels must be adhered to.

On top of all this he finds himself responsible for the Estates Department, a legislation section that considers parliamentary bills affecting the Company's interests, all office services at Millbank, administration of charitable appeals, dealings with trade associations and learned societies, and recruiting and training men for the Secretaries' departments in the Divisions. All this involves a vast amount of paperwork, committee work and organisation.

The kind of man who combines all the qualities needed for this job—imagination, flexibility, resilience, discretion, accuracy—is a rarity, and probably harder to find than a brilliant scientist or a sharp financial brain. Standard training ground is the rough-and-tumble of a solicitor's office. George Woods read economics at Cambridge, but then entered into articles with a solicitor because this offered better prospects in the depression of 1931. A post with the Surrey County Council led him to the assistant secretaryship of Alkali Division under J. K. Batty (who later became Division Chairman—an encouraging precedent). Fifteen years at Millbank as Assistant Secretary to Richard Lynex, whom he succeeded when the latter retired last March, completed his apprenticeship.

With his wife and daughter he lives in London, and like that early exponent of the secretary's art, Samuel Pepys, he loves the city for its bustle and its liveliness. For someone as gregarious and enthusiastic as George Woods, in fact, Pepysian is perhaps not a bad description—and certainly more appropriate than Galsworthian. *M.J.P.*



People & Events

New Laboratory Started

Construction has started on the new ICI Petrochemical and Polymer Laboratory. The site is at Runcorn Heath in Cheshire, alongside the new General Chemicals Division Headquarters.

The Laboratory is expected to cost £1½ million over the next five years and will accommodate the new research organisation set up earlier this year under the direction of **Dr. D. S. Davies** to reinforce the research work at present being undertaken by Divisional research units.

The role of the new laboratory will be to concentrate on long-term exploratory research—Divisions are often heavily committed to urgent short-range problems—with a view to contributing new products and processes which will achieve major commercial importance in the '70s and '80s. ('Perspex' and polythene, invented in the early 1930s, only became major contributors to ICI's business in the late '40s and '50s.)

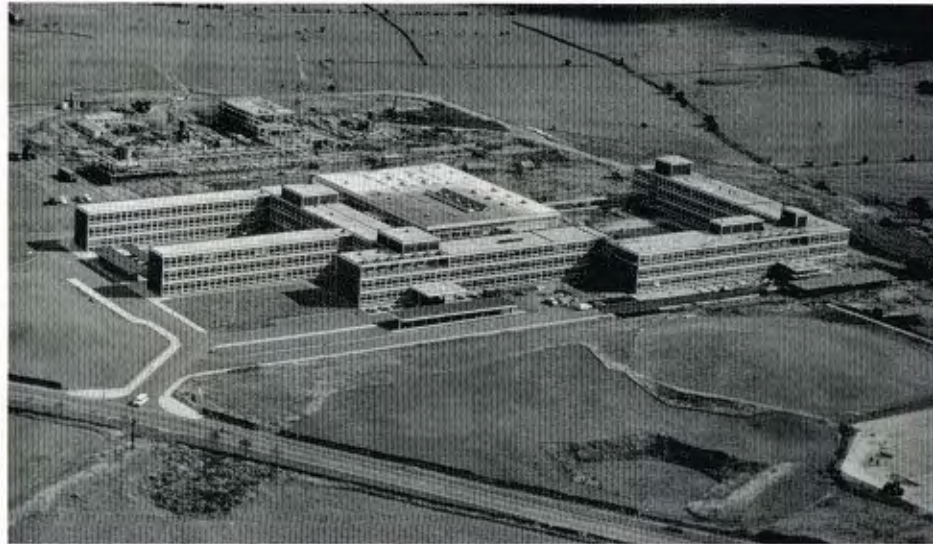
Experimental work has begun in some existing laboratories by a nucleus of about 20 science graduates from within the Company. Ultimately the laboratory will be built up to a strength of about 100 science graduates—about as big as a Division research laboratory—some coming from within ICI and some from outside, after academic research.

Referring to the objectives of the new laboratory, Dr. Davies says: "Someone has said that we hope to have our feet on the ground and our heads in the clouds. We hope to be able to acquire staff of the necessary stature!"

Spanish Flood Disaster

It is with deep regret that we have to record that eight employees of the Spanish 'Lightning' fastener factory at Rubi lost their lives in the floods which ravaged the Barcelona district at the end of September. The floods, which followed a severe drought, swept away 120 houses, two large and thirteen small factories at Rubi, but the zip fastener factory which lies just outside the town escaped serious damage, and the day after the flooding the majority of the factory's 400 employees were back at work, though they and equipment and facilities at the site were put at the disposal of the local authority.

The Spanish zip fastener factory belongs



An aerial view of the Runcorn Heath Site where General Chemicals Division has just established its headquarters and where the new ICI Petrochemical and Polymer Laboratory is to be built

to S.A. Azamón, which in turn is an ICI subsidiary. Besides supporting Azamón in helping its own employees and their dependants affected by the flooding, ICI has made a donation of £500 to the flood relief fund opened in the United Kingdom by the Spanish Club and the Anglo-Spanish Society. Azamón has also contributed some £300 to the local Rubi disaster fund. From collections and donations by Lightning Fasteners Ltd., Azamón itself and the fastener factories in France, Germany and Austria, the Rubi factory has received over £900 for the benefit of employees and dependants.

Half-year Sales Record

The Company's half-yearly accounts, reporting sales records both at home and overseas, received wide comment in the press. This is what they had to say:

Financial Times. To a market which had prepared itself for some really bad figures, the ICI results for the first half of the year arrived as a very pleasant surprise.

The Times. They are a good deal better than had been expected, and, what is more significant, the Board has seen no reason to revise its view on the prospects for the second half of the year, which it expressed at the time of the Courtaulds battle.

The Guardian. ICI has achieved more than was implied in Mr. Paul Chambers'

forecast during the Courtaulds battle, and more than trends in the chemical industry suggested it would.

Daily Mail. Mr. Paul Chambers thrilled markets and comforted the hopeful yesterday when he reported that ICI, the Commonwealth's largest manufacturer, did better than anyone expected in the first half of 1962. . . . A sure sign of ICI's quality is that, in spite of price-cutting, exports from the UK were nearly £3m. up at £51,900,000.

The Economist. As usual, the statement that was awaited with the keenest interest was that from Imperial Chemical Industries. Tuesday's figures from ICI were in fact very much better than had been expected.

Magadi's Flamingoes

Flamingoes—about two million of them—at Lake Magadi in Kenya recently made headline news in the papers and on television. The flamingoes, which normally nest on one of three lakes within an 80-mile radius of Lake Magadi, this year for the first time in living memory chose to nest at Lake Magadi.

Mr. Hugh Prew, who took our back cover picture when out in Kenya on business as a director of the Magadi Soda Company, explains that the heavy rains and flooding which followed the drought

in Kenya last year made the other lakes unsuitable for nesting. At the same time the rain diluted the strong soda liquor of Lake Magadi, making it more inviting for the flamingoes.

After hatching out, the young birds are fed in the nest for two days, and then follows a period of seven weeks, during which they can walk in search of food but cannot fly.

The problem that concerned bird lovers all over the world was the effect of evaporation of the soda lake which left a saturated liquor that crystallised round the young birds' legs like large cotton reels, making it impossible for them to leave the vicinity of their nests or to fly when the time came. And concern was all the greater because the Magadi flamingoes were estimated to represent 90% of the world's flamingo population.

Television news pictures of 23rd September showed the crystallised soda deposits being washed off the young birds' legs with fresh water piped over 20 miles by the Magadi Soda Company.

The rescue operation began during the week the flamingo story hit the headlines and continued to mid-October. Out of an estimated total of 800,000 young flamingoes hatched, about 30,000 suffered from having trona on their legs. With the aid of volunteers, Mr. and Mrs. Alan Root, who led the rescue operation, were able to clean up nearly 27,000 birds by actual count. The operation took place in hot knee-deep slush and in burning sunlight.

Since the completion of the rescue operation, **Mr. Garton-Sprenger**, general manager of the Magadi Soda Company, has received a letter of thanks from the chairman of the Flamingo Fund, who writes: "We could, of course, never have hoped to achieve the tremendous success which we had, had it not been for your help, and I would particularly like to tell you how grateful everybody was for the assistance given by **Mr. Tate**, your stores manager."

Motor Marathon

A recent article in *The Times* about the Commonwealth Games at Perth referred to the elaborate plans made to help those who drove to Perth over Eyre Highway, the road link of 1720 miles between Adelaide and Perth. It brought back memories for **Mr. Michael Steele**, a fourth-generation Australian, now working at Paints Division. Mr. Steele has done the transcontinental trip by car three times, the last time in 1952 with his wife and four children. The journey took them six days in spite of the fact that for the last 800 miles of the trip they drove non-stop, changing drivers every hour and chewing gum to keep awake.

The stretch from Norseman, a flourishing gold-mining town, proved the most awe-inspiring part of the journey. It was 330 miles to the next habitation—there were no motels or breakdown service in operation in those days as there were for

travellers to Perth last month. "After a long, slow pounding over terrible corrugations," writes Mr. Steele, "the road improved and we were beginning to make real progress through sheep country when we came to our first gate. The owner of this property had apparently suffered much at the hands of selfish motorists and had decided to talk to them in the only language they were likely to understand: 'Shut this Bloody Gate!' proclaimed a large sign in red paint. It was shut when we arrived—and it was shut when we drove thoughtfully on our way."

Spanish Polythene Plans

On 17th October the Company concluded an agreement with Empresa Nacional Calvo Sotelo, the Spanish oil organisation, of Madrid, and with Sociedad Anonima Cros, of Barcelona, to form a joint company for the manufacture and sale of petrochemicals and plastics in Spain.

The new company, which will be called Alcudia, Empresa para la Industria Quimica, S.A., will build at Puertollano, 100 miles south of Madrid, a plant for the manufacture of polythene, using technical information supplied by ICI.

The raw material, ethylene, will be supplied by Calvo Sotelo from an olefine plant to be built as part of the Puertollano oil refinery. The initial capacity of the polythene plant will be 30,000 tons a year.

Plans for Kilroot

To meet the growing demand for 'Terylene' and 'Ulstron' (polypropylene) heavy denier yarns for industrial applications, Fibres Division have decided to install plant for the manufacture of these yarns at their new Kilroot factory near Carrickfergus in Northern Ireland.

Building of the Kilroot factory started in 1961 with a plant for textile filament yarns which has just recently come into operation. When the heavy denier plant, which it has now been decided to install, is in full production, total capacity at Kilroot will be about 25 million lb. per year, and employment is expected to be in the region of 750.

'Terylene' Down Under

'Terylene' is also to be made in Australia. ICIANZ has reached an agreement with British Nylon Spinners under which 'Terylene' will be manufactured at Bayswater near Melbourne, where the Australian subsidiary of BNS already manufactures nylon fibre.

Construction of the plant is to begin shortly. Both filament yarn and staple fibre 'Terylene' will be produced, and the cost of the first stage extensions at Bayswater to accommodate 'Terylene,' which are expected to be completed early in 1964, is estimated at £3.2 million sterling.

The terms of the agreement include the

transfer of ICI's rights to 'Terylene' in Australia and New Zealand to BNS (Australia) and the sale to ICIANZ by BNS of half their existing holdings of £A3 million ordinary shares in BNS (Australia). The name of BNS (Australia) will be appropriately changed, and as from the New Year this company will be responsible for 'Terylene' in addition to its existing nylon products.

Nylon Expansion

A large expansion of nylon polymer manufacture in the north-east coast factories of the Dyestuffs Division of ICI is being planned at the request of British Nylon Spinners—the jointly owned ICI-Courtauld company—to supply the growing market for all the nylon range of products.

Costing several million pounds, the extensions are expected to come on line by the middle or latter part of 1964. The new production will be sited mainly at Nylon Works, Wilton, although there will be some small amount of parallel expansion at Nylon Works, Billingham. It will take the form almost entirely of additions and modifications to existing plant.

The new extensions are a further big step in the rapid expansion of nylon polymer manufacture since the original plant at Huddersfield—which is still in operation—went into production during the war, with a designed output of 300 tons a year.

After the war, the nylon plant at Billingham was built on the South Site and has since been considerably extended. In 1958 the Wilton nylon plant was commissioned and its capacity has been increased by subsequent extensions, one of which became fully effective in the summer this year and another is expected to be so by the end of the year.

Official Opening

Duperial Argentina, a subsidiary of ICI, has brought into operation its new industrial centre at San Lorenzo, 200 miles north-west of Buenos Aires on the Parana river. The new complex, which is the largest chemical works in the country, was officially opened on 3rd October by the Argentine Minister of Economy.

Four major plants have been constructed—for the production of sulphuric acid, carbon disulphide, hydrogen peroxide and phthalic anhydride. A plant to manufacture 14,000 tons per year of polythene by the ICI high-pressure polymerisation process is under construction, and a vat-dyes plant is planned.

Three of the four processes now in operation replace manufacture by the company on other sites. The coming on stream of the San Lorenzo complex represents the successful completion of the first stage of the major development and modernisation project announced by Duperial in 1959.

Cutting the tape. *Duperial Argentina's San Lorenzo Works* was officially opened on 3rd October by the Argentine Minister of Economy, Sr. Alvaro Alsogaray, representing the President of the Republic



International Film Award

At the International Industrial Film Festival held in West Berlin in September, the ICI Film Unit gained the only award to a British film with *Black Monday*, which it made for the Safety Department. It was in competition with fifteen films from seven countries in the category of films dealing with the human factor in industry, gaining first prize for Britain, with Germany and France second and third respectively.

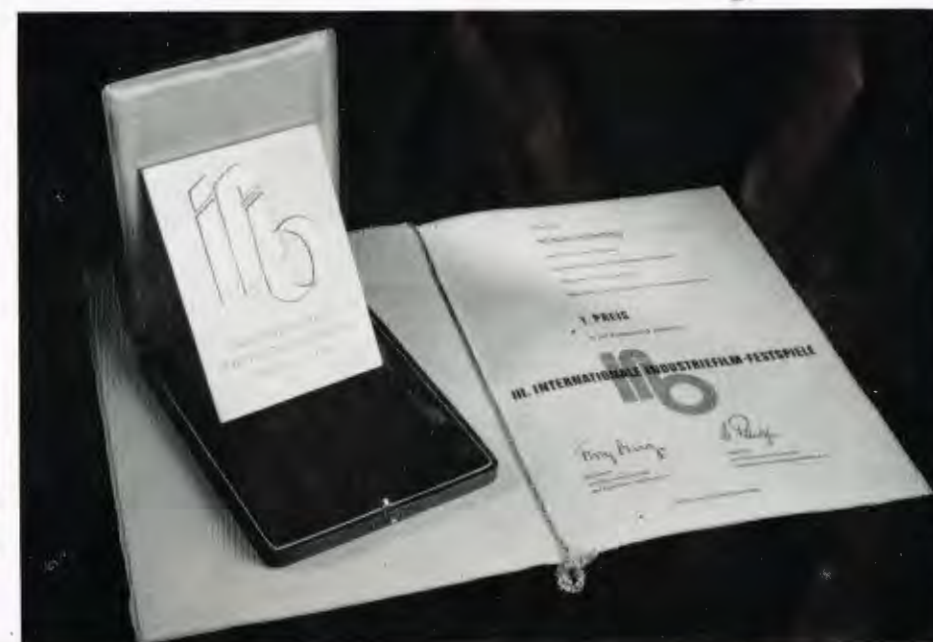
The Film Unit is busy at present on several productions. Almost completed is a film for Fibres Division and Britax (London) Ltd. on 'Terylene' safety belts, which includes spectacular demonstration crashes filmed in slow motion and a sequence in which Mr. Donald Campbell talks about his own crash in Bluebird at 400 m.p.h.

Other films in hand cover such widely different subjects as heat treatment, anaesthesia in small animals, beet-growing and leprosy.

Mr. FitzGerald retires. Mr. Kevin FitzGerald, head of Billingham's Fertilizer Publicity Department, retired at the end of August after 34 years' service. He is seen here (left) with Mr. R. A. Banks, who presented him with a pair of binoculars and an order subscribed by 260 ICI colleagues for books of his own choice



Safety belt film. Donald Campbell took time off recently from preparations for a new attempt on the world land speed record to visit Millbank for a day's filming in connection with a new ICI Film Unit production on 'Terylene' safety belts. Below: The award gained by the Film Unit for the film "Black Monday"—the only British success at the International Industrial Film Festival held recently in Berlin. (See also International Film Award)



Atom Expert Retires

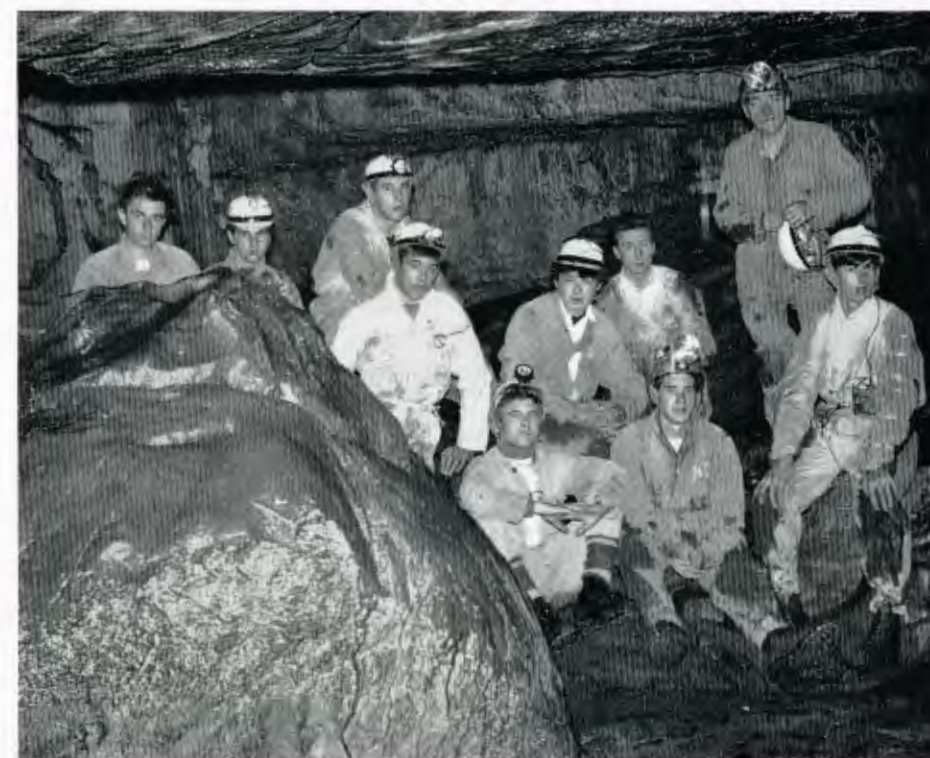
On 31st October Wilton Council handed over responsibility for the Wilton Site to Heavy Organic Chemicals Division. The same day also saw the retirement of Mr. Ronald Newell, managing director of the Council since 1957, after 34 years' service. Mr. Newell had been at Wilton since 1946—the first year of the Company's new post-war development on Tees-side. He became chief engineer, then engineering director, and for the past five years managing director. His service with the Company began in 1929, when he joined Synthetic Ammonia and Nitrates Ltd.—later Billingham Division—and where he became design engineer responsible for gas, boiler and power plant design at Billingham and at various government plants until 1942.

During the war Mr. Newell was lent by ICI to take charge of the engineering division of the Canadian atomic project which was responsible for building the first atomic reactor outside the United States at Chalk River, Ontario. From 1946 to 1949 he was a consultant to the Atomic Energy Research Establishment at Harwell and in 1958 was invited by the World Bank to be one of an international panel which advised on the establishment of a nuclear power station in southern Italy. He is currently a member of the Nuclear Safety Advisory Committee, of which Lord Fleck is chairman.



Mr. Newell

Underwater bubble car. This three-man submarine made from 'Perspex' was on show at the World Congress of Underwater Activities held in London in October. It is designed for skin divers carrying out lengthy observations. The streamlined 'Perspex' moulding gives all-round vision and protection from sharks



Brecon project. Sixteen young employees from Paints Division recently undertook a week's caving and mountaineering course in the Brecon area of South Wales aimed at developing self-reliance, initiative and team spirit. Above: Deep underground in Porth-yr-Ogof a wet and muddy party takes a breather





Down our way. Franklin Engelmann interviews Mr. A. S. Irvine, manager of the Alkali Division Information Service, during the recording of the "Down Your Way" programme featuring Northwich, which listeners to the BBC Light Programme heard on 14th October. Mr. Irvine outlined the history of salt in the Northwich District. Mr. A. C. Rolfe, head of the Division's Technical Service Department, was also interviewed. He described some of the uses of salt in its various forms and the applications of alkalis made from brine



Stowmarket Works success. Eight ICI teams were among competitors in the national finals of the Industrial Fire Protection Association's Competition held in London on 15th September. An ICI trophy for the best ICI performance in the competition was awarded for the first time this year and was won by a team from Paints Division's Stowmarket Works who were runners-up in the 5-man double hydrant drill event

New Look. The familiar black and yellow 'Dulux' can has given way to a smart new black and white design. For easy recognition, each product's name appears in its own distinctive colour, e.g. red for Gloss Finish and blue for Emulsion Paint. Brand name changes include the "promotion" of 'Du-lite' Emulsion Paint to 'Dulux' Emulsion Paint, and 'Supermatt' Wall Finish becomes 'Dulux' Supermatt



Names in the News



Mr. R. A. Banks, ICI Group's Director, has been elected chairman of the Industrial Training Council. He succeeds Mr. G. H. Lowthian, general secretary of the Amalgamated Union of Building Trade Workers.



Mr. Anthony Billington, an apprentice at Alkali Division's Avenue Works, won a silver medal in the International Apprentice Competition held at Gijon in northern Spain. He was chosen to represent Britain in the constructional steelwork class after winning a preliminary competition at Bolton Technical College.



Dr. Percy Brian, associate research manager of Pharmaceuticals Division and a world authority on gibberellic acid, has been appointed to the Regius Chair of Botany at Glasgow University.



Lord Chandos, a non-executive director of ICI, has published his memoirs (Bodley Head, 30s.). Of them *The Times* reviewer commented: "Every man is said to have one good book in him. In very few cases can it be as good as that of Lord Chandos."



Mr. Frank Kendrick, a 41-year-old process worker at General Chemicals Division's Wade Works, has been awarded £520 under the ICI Suggestion Scheme. This is the largest award ever made by the Division.



Mr. Richard Lynex, who retired last March after 17 years as ICI secretary, has been appointed secretary and chief executive officer of the South Bank Theatre and Opera House Board.



Mr. Howard Payne, a plant manager at Billingham Division, gained a gold medal for England in the Commonwealth Games at Perth. He won the Hammer event with a throw of 202 ft. 3 in.



Dr. John Swallow, who retires early next year after 10 years as chairman of the Plastics Division, gave the Swinburne award address at the Royal Institution in London on 12th November. He is the second recipient of the award, which is made by the Plastics Institute for an outstanding contribution to plastics.

Retirement of Mr. W. S. Bristowe



Mr. Bristowe

Mr. C. M. Wright, Personnel Director, writes:

In saying goodbye to Bill Bristowe the staff in the Company is losing its staunchest advocate and friend.

After graduating in natural sciences at Cambridge and distinguishing himself in other fields of endeavour—he was president of the University Athletic Club and captained a combined Oxford and Cambridge team to the USA in 1924—he joined Brunner, Mond & Co. in 1925. Some eighteen months later he was moved to the Foreign Department in London, and in 1931 he was responsible for forming ICI (Malaya) Ltd. In 1938 he became deputy head of the Central Staff Department and head of this department in 1948.

In so many ways he has been ideally suited to his position. His outstanding qualities are modesty and personal charm, honesty of thought and complete integrity, and all ranks of staff acknowledge his untiring zeal for their well-being. Having had the privilege of working closely with him, I know that he has constantly given wise counsel and help to staff who have had special worries.

His outside interests are amazingly wide and varied—in fact I know of no one who can speak with such authority on so many subjects. He is a world authority on spiders (he was awarded the degree of Doctor of Science at his old university for his researches in this field), and only last April he received, at the hands of the Duke of Edinburgh at the annual meeting of the Zoological Society, the Stamford Raffles Award for his outstanding contribution to zoology. Other subjects which have interested him greatly at various times and on which he is an expert are ghosts, giants, islands, Sherlock Holmes and Siamese history.

Bill has an enormous capacity for work, and despite all these outside interests his energy and enthusiasm on behalf of the staff of the Company have never waned. He will indeed be missed by us all; but we know that he will continue to lead a very full life, and our warmest good wishes go to him and to his wife for a long and happy retirement.

50 Years' Service

During the past two months the following employees have completed 50 years with the Company



Mr. J. Clarke
Alkali Division
(25th September)



Mr. F. Hoyle
Alkali Division
(15th October)



Mr. J. Leese
Alkali Division
(1st November)



Mr. R. Naden
Alkali Division
(15th September)

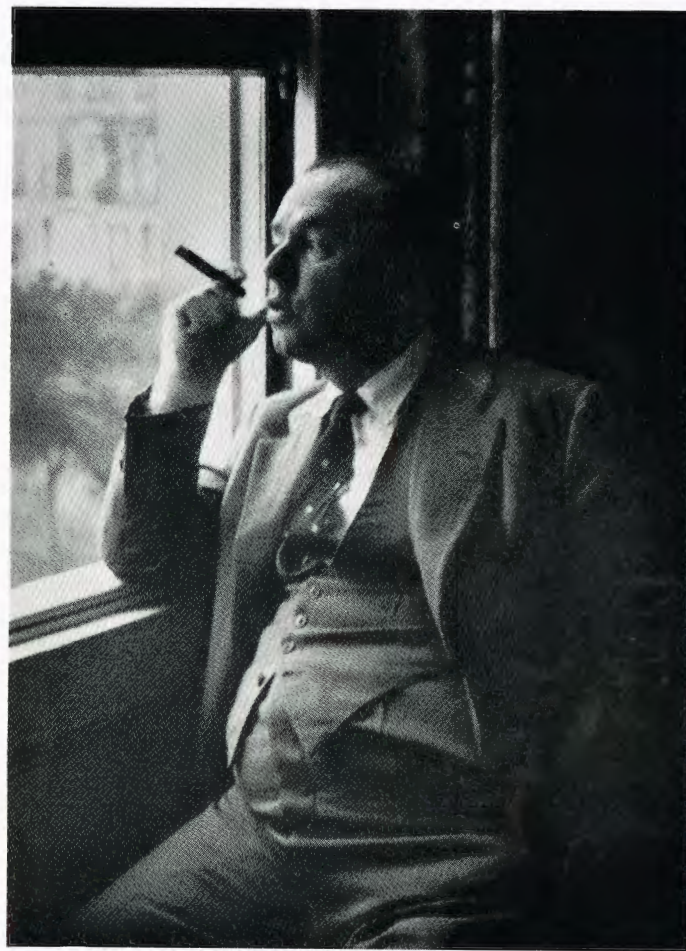


Mr. H. Pearson
Billingham Division
(8th October)



Blackpool 1962. The Paints Division table at Central Council which was held at Blackpool on 16th November. Left foreground is Mr. Hugh Parker, director and resident manager at the London office of McKinsey & Co., who was a guest of the Chairman at the meeting and talked to Council about the study his firm is making of ICI

MAN



The author

VERSUS SCALES

DENZIL BATCHELOR

The American General Sherman once said: "War is hell." He certainly had a tenable thesis, though in his day war, which still included the cavalry charge, was conceivably something slightly better. Today, of course, war is defeat—defeat for both sides: but *weight* is hell.

I began my battle against weight at twenty—it was a losing battle, as are all those fought against this Last Enemy. I was at Oxford, and had a right to be considered as a serious welterweight candidate for a half-Blue. The only major difficulty was that as a welterweight I happened to be a cruiserweight: twelve stone, if an ounce. The humiliating thing was that no rival welterweight ever insisted I weighed in at ten stone seven—all were only too delighted to see such a mug appear as a challenger at *any* weight. (I once got as far as boxing the University captain, W. J. Leaning, who had knocked out his last three opponents in a round apiece. With this in mind, I hugged my way through three desperate rounds interrupted by a call from the referee: "You're clinching!" "He's Leaning," was my reply. The referee almost gave me the contest on the spot, but finally said: "Box on"; and I lost on points, as happy as a sandboy weighing in with a mount in the Derby.)

Now, in my mid-fifties, the problem is to weigh little enough to ride *two* horses in the Derby. But at least one knows where one is, at fifty-six. One knows that the Moment of Despair is when one tips the beam at Seventeen Stone Seven Pounds: the moment when God's in His Heaven, All's Right With the World is when one is an ounce the right side of Sixteen Stone. One also knows that one will not do it by exercise. Captain Barclay, who survived the horrors of the Walcheren Expedition, trained Tom Cribb to retain his heavyweight championship against Molineaux at

Thistleton Gap, Leicestershire, in September 1811, by physicking him four times daily, walking him up to thirty miles, and making him sprint—by which obsolete methods he reduced him from sixteen to thirteen stone.

Then there was the lecture of Mr. Sandiver, the celebrated surgeon, to Sir John Sinclair on the art of wasting among jockeys in the eighteenth century. Jockeys trained from March till October, and lost a stone and a half in a week or ten days before the season began.

For breakfast they ate "a small piece of bread and butter, with tea in moderation." Lunch was a very small piece of pudding and less meat—better still, a tiny piece of fish. Tea followed, with little or no bread and butter. There was no supper. The ideal beverage was a little—a very little—wine and water.

After breakfast, a jockey would put on five or six waistcoats, two coats and pairs of breeches, and walk from ten to fifteen miles. On his return he replaced his wet clothes with dry and sometimes slept for an hour. Those who disliked walking physicked themselves with Glauber's salt. John Arnall, rider to the Prince of Wales, kept off animal and farinaceous foods for eight days, consoling himself with an occasional apple. He lived into his sixties. Kirton, who won more gold cups than anyone in this age when grown men were expected to ride at seven stone, lived to ninety-three.

But why does one go back to the age when the non-weight-reducers were, to a mammoth three-bottle man, eating fabulous feasts, the age when a Norfolk farmer observed: "A turkey you divide between two; with a duck or a chicken the rule is one per person—but what do you do with a goose?"



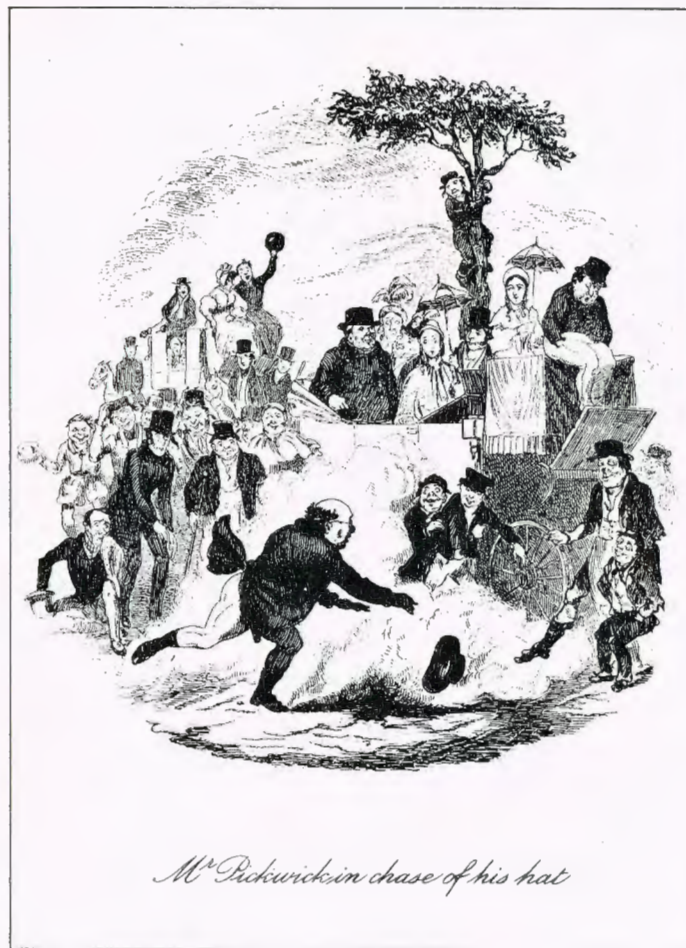
Tree as Falstaff in "Henry IV"

The problem today is vastly different. In the 1960s the question resolves itself into getting weight off people who don't overeat and are not self-indulgent. I remember a man who rode more than one Grand National winner giving a birthday party to his owners, who tucked into turkey and champagne while he ate a lightly boiled egg in the next room. His reward was the remark of his chief patron as he staggered out to his car: "You want to be careful with your diet, you know, or you'll be too weak to ride in a tight finish."

Well, perhaps the jockey should have lost the last crucial pound in a Turkish bath—though if he had, he would have found that the first pint of water he drank after hours of dehydration would restore him to his previous weight.

Models and film stars have as hard a task as any. They have to watch every tenth of an inch threatening waist or hips, and yet be continually photographed at the most lavish parties enjoying life to the full—and I mean *full*. I knew one model who married a man because he was always ready to drain the glass she was photographed brandishing; and then, when he became an alcoholic, ungratefully divorced him. I know two models who at least twice a year go on diets which eliminate all fats, sugar, alcohol, and almost all starch, for anything up to eighteen days. You lose two pounds a day until your diet ends—then you gain two pounds a day for three weeks.

One starlet I know ran into really bad luck. Half-way through her 18-day diet she was asked out to lunch with a producer who was looking for a star in a play which she was convinced would make her famous for life. She knew it meant putting on two pounds and saying goodbye to her eighteen-inch waist, but she



Mr Pickwick in chase of his hat

From the Phiz Illustration

had to go. She worried so much about breaking her diet for a day that she actually lost weight: for worry is the best weight-reducer in the world.

I should add that she got the part; the play flopped; she became so discouraged that she gave up dieting and doing slimming exercises and became downright portly—achieving fame in rôles (I almost said rolls) as the heroine's globular aunt from the country, and ultimately winning the title of Miss Turkish Delight.

But, of course, the girl isn't happy even now: because when you are fat you can never be tragic, and it is the ambition of all eighteen-inch waists to play tragic parts on stage and screen.

There has never, as far as I know, been a fat serious actor or actress. Hamlet is described in the duel scene as "fat and scant of breath"; but a stout actor in the part is as unimaginable as a poverty-stricken bookmaker. Perhaps it is this subconscious yearning to be taken seriously that makes stout people long to lose weight. They say that "all the world loves a fat man"; for most of us, Billy Bunter is the noblest schoolboy in fiction, just as Falstaff is the best-loved figure in *Henry IV*.

Moreover, the alternative to man in the round is grim indeed. How sinister G. K. Chesterton's wit would have sounded coming from thin lips beneath sunken cheeks! Edward VII could never have played the part of the Citizen King without the assistance of a waistcoat that welcomed the custom of leaving the last button undone. Dr. Johnson would never have achieved an immortal reputation for infallibility if he had been slim enough to squeeze into a pulpit.

Even in the sporting world, where weight is almost a death sentence, the popularity of Don Cockell as a heavyweight cham-



The one and only Billy Bunter

pion was as much due to his stoutness of body as of heart; while I never knew a more widely revered Australian captain than Warwick Armstrong, who was nine stone when he took part in his first Test and over twenty when he played in his last.

You can't stop women from losing weight, because beauty is all-important to them; but with men (who in the main want to be popular) it is surely madness to throw away this heaven-sent trump card. And yet, if all the world loves a fat man, all the world loves even more attempting to help a fat man to reduce. No one derives pleasure from urging a thin man to take an extra pork chop or another meringue, but everyone's face lights up and tongue is loosened when a fat man announces his determination to become thin.

Why is this? Is it the natural reforming instinct of man (and particularly of woman) breaking out at first sight of a victim? Is it just one more example of the work of the baneful do-gooder, determined to alter other people's destinies on the slightest excuse? Surely not! Surely there is more to it than that. My own belief is that subconscious jealousy is behind those eager profferings of advice. After all, if you can fine one down, you have one less rival for the world's love and attention which it is the ambition of all of us to bask in.

Last week I was fool enough to make a disparaging remark about my own rotundity. A French vineyard-owner (the sort of man from whom one might expect ultimate wisdom) instantly said: "Don't disparage yourself. Glory in your girth—and everyone will stop being sorry for you and start envying you for your magnificent presence and sumptuous way of life."

I think he was dead right. The defence rests.



Percy Thrower

In your garden

As Christmas draws near we think of the decorations, an essential part of Christmas, as well as all the good things to eat. A well-kept and well-planned garden will help considerably towards both and, if it has not been planned so that it does help, we must begin preparations for next year now. Many times I have mentioned the trees and shrubs which flower during the winter and which can help with the decorations; there are two plants worthy of mention too. The Christmas rose, *Helleborus niger*, is well known, but the winter-flowering iris, *Iris stylosa*, may not be quite so well known. If you have no Christmas roses in your garden, why not order now for planting in February or March? They are among the hardiest plants we grow, and the best position to plant them is under a wall or fence facing to the south or south-west, where they will get some protection when the flowers begin to open. A handful of 'Plus' fertilizer, some peat, leaf mould or garden compost can be mixed with the soil before planting, and if the soil is of a heavy nature mix some coarse sand with it as well. To keep the flowers clean and to have them ready in time for Christmas it is wise to put a cloche over the plants in early December. The flowers are not on very long stems, and if they are not protected the rain will splash the soil on to the white petals.

Iris stylosa is best under a south or west wall or fence too, and, although it may be a year or two before it will begin to flower after planting, the pale blue flowers which come almost continually throughout the winter are worth waiting for. As well as peat or compost and 'Plus,' some old mortar rubble or coarse sand can be mixed with the soil. The plant has long, strap-like leaves, and the flowers form on short stems in the centre of the plant. These should be gathered for use in the house by pulling them from the plants while still in bud. A day in water in a warm room and the large pale blue flowers will be fully open. This one, like the Christmas rose, can be ordered now, but ask for delivery in February or March because this is the best time for planting.

If you are cutting evergreens from the garden for the Christmas decorations be sure to use a sharp pair of secateurs and do not disfigure the trees and shrubs. I hope people who gather berried holly from the country lanes will also bear this in mind—far too many beautiful holly trees are disfigured each year.

This may not be a month when we want to think of too much work; but there are even at this time of year a few hours we can enjoy in the garden, and there is no better time than the present to spend those few hours with the spade and fork. The soil in the vegetable garden turned over and left in large lumps during the next few weeks will crumble down and make a beautiful seed bed in the spring with very little effort on our part. The weather, especially frost, snow and wind, can do so much to help us, and we must make the best of help such as this. I often wonder how many people know how to use a spade and dig the ground properly. It is impossible to turn the soil over properly unless we begin by making a trench the whole width of the portion of the garden we intend to dig. The trench needs to be eighteen inches wide and the full depth of the spade to allow for the forward movement and turning of each spadeful. The soil from the trench must be put aside to fill in the last trench when digging is finished. If the ground has been thoroughly turned over and kept even, the last trench will be the same size as the first one. No more soil than can be comfortably lifted should be on the spade at any one time, and for anyone not accustomed to digging it should be done a little at a time.

Before beginning the winter digging of the vegetable garden we should have a rough sketch plan of where the various crops are to be sown or planted. We must not dig in fresh manure where carrots and parsnips are to be sown, or they will form forked roots. What manure there is available should be used for onions, potatoes, peas and beans. Manure or compost can be put along each trench as the digging is done. Basic slag is one of the best and cheapest manures to use on a heavy soil, and this can be spread over the surface, four to six ounces for each square yard, after the digging is finished. It is mainly a phosphatic manure which is slow in breaking down into soluble plant food and should be on the soil before the end of February. Where the runner beans and sweet peas are to be sown or planted, a trench can be made and left open to the beneficial effects of the weather. The trenches will need to be two feet wide and eighteen inches deep, and be sure to heap the soil up on either side of the trench so that as large an area as possible is exposed to the weather. When the trenches are filled in in the spring, manure or peat, as well as fertilizer, can be mixed with the soil.

CATALYSTS

The 'interesting curiosities' that changed our industry

George Bridger

Many of ICI's chemical products such as nylon, 'Terylene,' ammonia, nitric acid and sulphuric acid are manufactured by processes which make use of catalysts. Other industrial processes, too, are very dependent on catalysts: the manufacture of high-grade petrol, of margarine and of detergents comes to mind. Because catalysts are so important to the chemical industry, ICI makes them both for its own use and for sale to other users, and Billingham Division operates a special factory at Clitheroe devoted entirely to their manufacture.

What are catalysts? What do they do? Why are they so important? They are important because they speed up chemical reactions; without a catalyst many processes would take place so slowly that the plants required to operate them would be far too large and too expensive. Sulphur dioxide and oxygen will combine slowly, even without a catalyst, to form sulphur trioxide, which can be dissolved in water to make sulphuric acid; but the amount of trioxide produced is very small, too small to be worth while. By introducing a catalyst, however, a workable process for making sulphuric acid is obtained. Again, nitrogen and hydrogen will only combine to form ammonia when a catalyst is present; as it happens in this case, the gases have to be compressed to make the process economical.

An interesting feature of a catalyst is that it is not consumed in the process: it assists the chemical reaction but does not appear in the product. Often, therefore, only a small amount of catalyst is required. In the case of the catalyst used to make sulphuric acid, 1 ton of catalyst can make 30,000 tons of acid in its life.

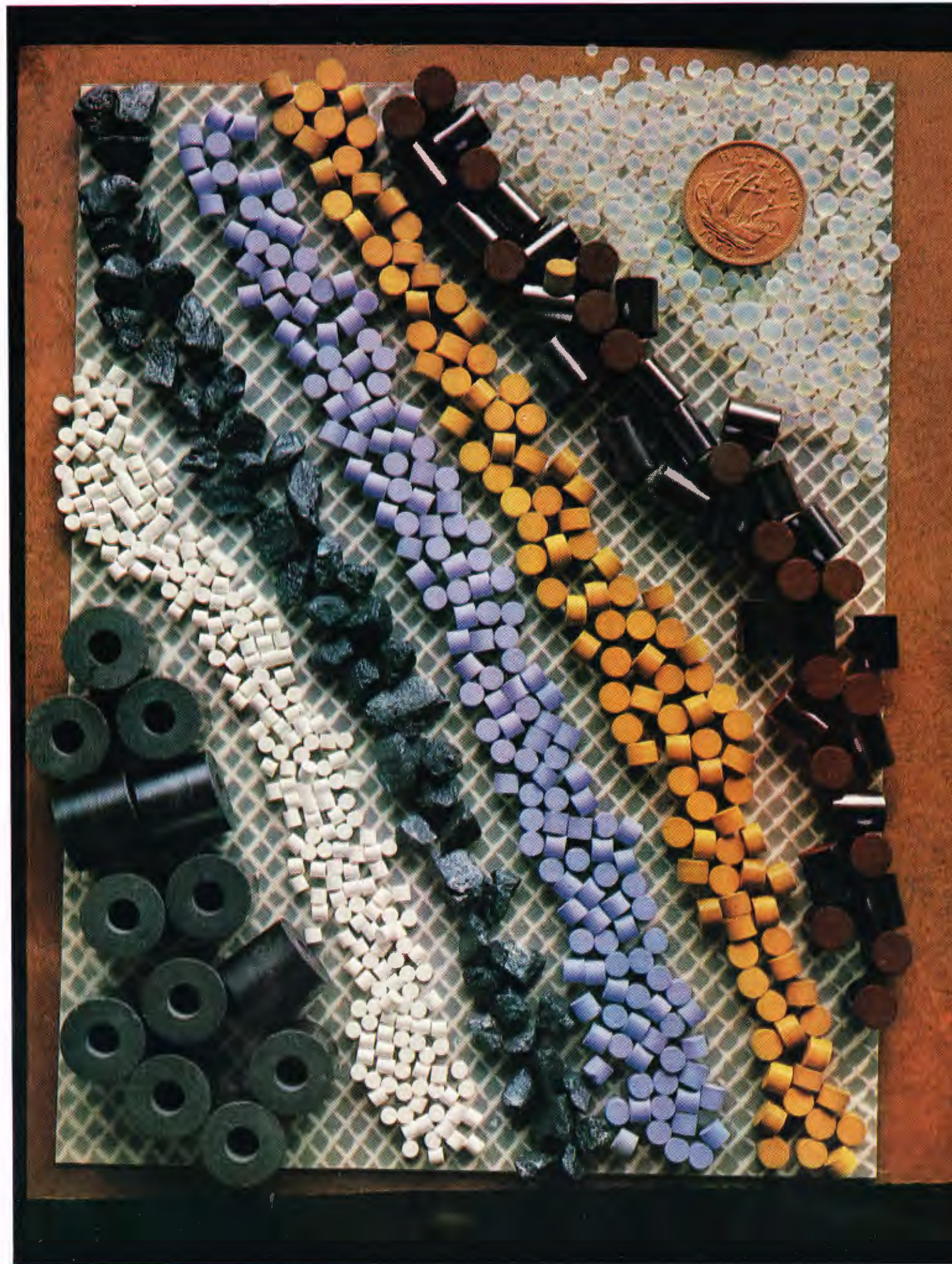
There are many different kinds of catalyst, and the right one has to be chosen for the particular chemical reaction to be

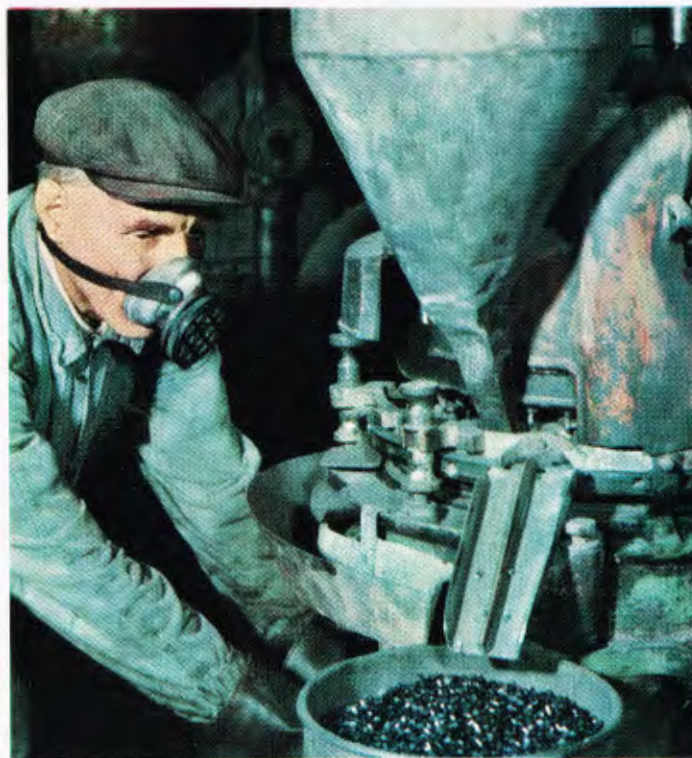
assisted or "catalysed." For example, the catalyst used to make ammonia is mainly iron, the one to make sulphuric acid contains vanadium, and they are not interchangeable: the vanadium catalyst could not be used to make ammonia.

Most of the catalysts used in industry are solids, and they are usually fairly ordinary substances. They can be pure metals such as iron, copper or nickel, or the more expensive ones, silver or platinum. Others are simple oxides such as vanadium oxide, aluminium oxide or silica. Often an effective catalyst is a mixture of these substances, and although the separate components are simple, the assembled mixture is complex and has to be made carefully by special methods.

Catalysts are used in various forms, as irregular pieces or granules, as cylindrical pellets or balls, as powders, or, in the case of metals, as woven wire gauzes or strips. Some of the various shapes and sizes are illustrated. The pellets or pieces are usually packed as layers perhaps several feet deep in a vessel through which the gases to be reacted are passed. The pellets with holes through the middle offer less resistance to the flow of gases, which is an advantage. If the reaction is very easily catalysed, that is, it needs very little assistance from the catalyst, only a thin layer is needed; nitric acid is made by passing ammonia and air through a thin pad of wire gauze (shown magnified in the background of the catalyst photograph), and the gases are in contact with the metal catalyst for less than

Various types of catalysts. They are shown in their actual size except for the background, which is the mesh, magnified 20 times, of a platinum-rhodium wire gauze used for the manufacture of nitric acid. The other catalysts, from left to right, are: Nickel oxide-alumina rings for hydrocarbon reforming; alumina pellets used to make alcohols and similar compounds; iron oxide catalyst for ammonia synthesis; cobalt-molybdenum-alumina pellets for purifying petrols; vanadium-silica pellets for sulphuric acid manufacture; iron oxide-chromia catalyst for hydrogen manufacture; alumina-silica beads for processing petrols.





ABOVE: Forming the pellets, the last stage in catalyst manufacture
BELOW: Converters containing catalyst for the synthesis of ammonia at high pressure

one-hundredth of a second. The spherical pellets (shown at the top of the photograph) flow easily because of their shape, and are used in a petrol-making process where the catalyst is actually transferred from one vessel to another and back again repeatedly.

How do catalysts work? A simple example can be taken: for two gases, for instance sulphur dioxide and oxygen, to combine, clearly the molecules must come close together. The catalyst, if it is the right one, assists this getting together by providing a suitable, comfortable surface on which the molecules of one of the gases, say oxygen, can stay temporarily. These "adsorbed" molecules are stationary and therefore have a better chance of reacting with molecules of the other gas, sulphur dioxide, which are constantly striking the surface. Once reacted, the combined molecule, sulphur trioxide, becomes detached from the surface and the reaction is complete, leaving the catalyst ready to repeat the process.

This is a simplified explanation, but it does provide a picture of what goes on. It explains why the catalyst has to be chosen to suit each sort of reaction; if the wrong catalyst is chosen its surface will not attract and hold one of the reactants long enough for it to combine with the other. Vanadium oxide can hold oxygen and will therefore catalyse the reaction between oxygen and sulphur dioxide; it will not hold nitrogen and will not help nitrogen and hydrogen to combine to form ammonia.

This illustration reveals the importance of the surface of the catalyst. Many catalysts are porous solids which have very high areas of surface. This is not just the outside area of the catalyst pieces but is the internal area of the fine pores within the pieces. Thus a ton of alumina catalyst can consist of about 20,000,000 pellets which have a total surface area of about 30



square miles. It is because of this high area that relatively small amounts of catalyst are required.

We have seen how catalysts assist chemical processes without themselves being used up. They should therefore last indefinitely. Some do have lives of several years, but others "die" more quickly. In time they lose their effectiveness because their active surface becomes contaminated or "poisoned" with other substances. In some cases the high surface area is lost because the pores become blocked or collapse during long periods of operation at high temperatures. In others the catalyst particles themselves disintegrate, forming dust which chokes the bed so that gas will not pass through it.

Some can be regenerated: a choked catalyst can be sieved to remove dust, and some poisons can be removed by heating. The spherical catalyst referred to earlier loses its efficiency in the petrol processes in which it is used because it becomes coated with carbon. A proportion of the catalyst is therefore continuously transferred to another vessel, where the carbon is burnt with air and the clean catalyst is then transferred back to the petrol reactor again.

The selection of the "right" catalyst for a process is not easy. Fifty years ago, when catalytic processes were coming into use, it was a case of trying as many substances as possible until the one was found which worked the best. Now, on the basis of this experience, the search can be narrowed down, but many experiments and trials are still needed. In fact, the search is unending, because it is often possible to improve the performance of an existing catalyst by methodical research. Perhaps it can be made more effective so that even less catalyst is needed or a smaller plant can be used.

Consequently industry puts a lot of effort into developing better catalysts and better catalytic processes, and ICI is one of the leaders in this research. In the last few years several catalysts have been improved in the Company's laboratories, among them the catalyst already referred to for the manufacture of sulphuric acid.

The new sulphuric acid catalyst which has been developed (the yellow catalyst in the photograph) demonstrates how small changes in a catalyst have a big effect on its performance. In composition the new catalyst is similar to that of many others used to make sulphuric acid. It is a typical hotch-potch of vanadium, potassium, silica and sulphur; but by adding other ingredients in small amounts and by careful control of various processes during its manufacture, its efficiency as a catalyst has been much improved. For example, it causes oxygen and sulphur dioxide to combine at a lower temperature than other catalysts do, which enables higher output of sulphuric acid to be obtained. Another advantage is that the pellets are stronger, so that they break down less in use. This new catalyst is now being sold throughout the world as well as being used in the Company's own plants.

This outline has necessarily been brief, but perhaps it has thrown a little light on those ordinary substances with extraordinary properties, which we term catalysts, substances which at the beginning of the century were no more than interesting curiosities but which have since changed the chemical industry and made possible the production of such familiar commodities as synthetic fibres, high-grade petrols, superior paints, and detergents.



View of the Desertas etched from an old map

The Desertas in Sunshine and Mist

W. S. Bristowe

The day started bleakly with bread, jam and coffee at 2.45 a.m., and an hour later we were assembled on the moonlit quay at Funchal waiting for Dr. Durão. Our destination was Deserta Grande.

Of the Desertas we knew little and of Dr. Durão nothing at all, except that he and a friend were spending the day there shooting wild goats and had kindly agreed to give us a passage in his launch.

The Desertas are three islands about 20 miles from Madeira. They have never had permanent residents, although a group of observers was stationed there during the second world war—they were responsible for bagging one submarine—and peasants of a past century used to visit Deserta Grande twice a year to plant and harvest crops or to collect lichen for making dyes. They also used to shoot shearwaters, whose flesh was relished and whose oil was useful, and it was they who introduced the goats and rabbits which now run wild on the island.

Books all agree that there is no water on the islands, but Juan de Sã, who was to be our guide, had found a tiny trickle in a cliff face on Deserta Grande and had cunningly led it by a tiny runnel into a storage tank the size of a large suitcase. During the war he had also scratched rough steps up the steep cliffs to two small caves which had been used by the observers and which were now to be our headquarters.

Unlike Dr. Durão, we were not going to shoot goats. Nor were we in search of Captain Kidd's treasure, which has inspired expeditions to both these islands and to the Salvages. None the less such legends of pirate treasure naturally added a background for speculation on the chances of a miracle occurring and of unethical thoughts about ways of making it our own without the intervention of politics, tax collectors or brigands. Our quest was quite different. We were in search of a spider.

This was no ordinary spider. It had been found on Deserta Grande over a hundred years ago, and it was confined to this one tiny island. It was the largest Wolf Spider in the world. Isolation had produced evolutionary changes which had caused



The author trying not to look frightened with a 1000 ft. drop behind him

different authorities to disagree about the genus, or surname, it should bear (*Lycosa*, *Trochosa*, *Hogna*, *Geolycosa*?), and my hope was that the capture of fresh specimens, combined with a study of their habits, might lead to a final settlement of this conflict over its lineage. The early discoverers said it ate lizards—and as its body length exceeded 4 cm. this was possible for a spider with a poisonous bite, though very unusual.

Both Porto Santo to the north of Madeira and Madeira itself have their own special relations of the Deserta giant, but

strangely enough the size is in inverse relation to the size of the island. The Porto Santo relation (*Lycosa maderiana* Walck) is a fine creature with a lightly marked pinkish-grey body and glistening reddish-gold legs. Large specimens have bodies nearly 4 cm. in length, while the duller-coloured Madeira giant (*Lycosa blackwalli* Johns) is somewhat less.

My daughter Richenda and I intended to camp on Deserta Grande for four days with our guide. During the first two days W. H. T. Tams from the British Museum, and Eric Classey, who had once worked there, were to be with us. Both were experts on moths, with a wide knowledge of other insects, but the spider's fascination had gripped them so strongly that their own special quests had already taken a back seat in their imaginations.

By 4 a.m. we were on our way. Sitting on the foredeck of the *Espadarte*, we watched the changing silhouette of Madeira and tried to identify its villages by their twinkling lights. Then, with the first rays of dawn, we began to distinguish the fleeting forms of shearwaters skimming over the water and an occasional flying fish embarking on its ghost-like flight over the rippling sea. In the morning light we were presently able to pick out the three Desertas. To the left lay the smallest, Ilheu Chão, with seemingly vertical sides and a flat top. In the middle, Deserta Grande, lofty, precipitous and, from the angle from which we were approaching, looking deceptively shorter than 6½ miles. Beyond and to the right was Bugio, with fine rocky peaks.

For two hours we were landed on Ilheu Chão while the shooting party was taken to the northern landing on Deserta Grande, to start the trek to the southern end where the launch would later pick them up. Time allowed us to scale the 350 ft. cliff and traverse a rocky tableland, where our combined efforts satisfied us that the spider did not live there—only a much smaller relation, *Lycosa insularum* Kulcz, which is shared by Madeira and Porto Santo.

After rejoining the *Espadarte* we sailed along the western face of Deserta Grande. So steep and forbidding were its cliffs that we almost expected boulders to drop from them into the sea beside us. They became no more welcoming where we cast anchor in the shelter of a small island which owed its existence to a gigantic landslide which, many years ago, caused a tidal wave that had washed people to their deaths from the shores of Madeira, 20 miles away.

Without waiting for another breakfast, although it was now 8.30, we picked our way between boulders to some steps cut into the cliff. These led to the main cliff face, where they continued up a path which was nowhere wider than three feet. Hunger soon gave way to thirst, and thirst to terror so far as I was concerned, as we toiled upwards in the hot sun with heavy loads on our backs. To practised rock climbers no dismay would have been caused by a vertical wall on the left which crumbled at the touch of a finger and with one step to the right leading to eternity, but to me it was a terrifying experience as we mounted to 500 ft., to 1000 ft., and finally to 1400 ft.

I concentrated my gaze on the path ahead while Richenda, seemingly untroubled, bounded on ahead with the guide. The irrepressible Eric was at my heels with a flow of merry chatter which only a rare grunt from me did nothing to stem. Oblivious of my predicament, he exhorted me to admire the view and to notice past landslides. He kicked loose boulders over the edge and estimated our height by obscure calculation of the time it took them to reach the bottom. He even swished his butterfly

net at a grasshopper and remarked that he had saved it from a record jump over the edge.

Meanwhile the Professor, as Tams was called, was taking his time, so we waited when I came to an inward curve of the path where it followed the shape of a small gully. Neither the climb after only four days away from sedentary life in London nor his 70 years had damped his ardour. In one hand he carried a Gladstone bag and his butterfly net and in the other a precious lantern with which to entice moths at night. Round his neck dangled a knapsack and a camera.

Frequently he stopped to take photographs or capture an insect, and his first action on joining us was to produce a spirit level, of all things, from his knapsack to see if at this point the path still tilted upwards. This, I may say, was typical of the mysterious contents of his knapsack.

"It's no use thinking of things you might want," he explained, "unless you always carry them with you." True to this doctrine it contained a screwdriver, a composite knife with which we could certainly have extracted stones from a goat's hoof, a ball of string, a leather sewing needle, sticking plaster, spare shoe laces, some brandy, and a piece of white chalk. It was noticeable, however, that Richenda had to produce a tin opener and I a bottle opener when we finally reached our camping site!



Richenda and the guide on the path from "Spider Valley"

This eyrie we reached soon after 10 o'clock. Here, just below the topmost crags, the path became level and widened into a 6 ft. platform in front of two small caves fitted with bullet-proof doors. The doors were useful for excluding the multitude of lizards which here, strangely enough, have become partially vegetarian and which wrangled over tomatoes, bread or other food which we threw to them or left lying about.

After a change of clothes we made our first reconnaissance. The path led into a small valley of red earth and lichen-covered

grey rocks with a few patches of closely grazed dry grass. A pair of goats watched us from a distance and trotted nimbly away as we moved towards them. Rock-turning produced millipedes, cockroaches, beetles and a few small kinds of spider, but nothing resembling the Giant Wolf Spider. We explored further valleys, most of them rocky and barren, and eventually I returned to camp confirmed in my disbelief that the Giant Wolf Spider could live in such arid surroundings. We therefore had a discussion with Juan de Sã, mostly conducted by Richenda with the help of a Portuguese dictionary.

A peasant of indeterminate age with a gaunt, lined face that lit into a delightful smile at the slightest suspicion of a joke, Juan de Sã always repeated his answers to our questions over and over again in lilting hexameters until we had deciphered his meaning. On this occasion he said that a valley of grass lay at the extreme northern end of the island, about six miles away, and that the journey each way might take 2½ hours. Allowing for time to search for the spider and to descend the cliff from our camp, Eric and the Professor were forced to abandon the expedition for fear of missing the launch which was coming to fetch them in the early afternoon of the following day. This was a bitter disappointment because I knew how really eager they were to help capture the spider, but they extracted a promise

could see nothing beyond our ledge. Juan de Sã took a gloomy view of leading us to the other end of the island in this weather, but eventually Richenda's coaxing, my persistence, and a slight lifting of the cloud won him over and we started before 7 o'clock.

The steep ascent of the central saddle was soon followed by an equally sharp descent for a hundred feet to the beginning of the path cut into the almost vertical cliff face on the other side of the island. For a mile we walked along this with the white cauldron of mist shielding me from a view of the steep drop which lay beside us. Twice we came to places where the three-foot path had been swept away by landslides, and even Juan de Sã walked as delicately as Agag as he felt step by step the safety of the steep-sloping scree.

We emerged on to the hilly centre with a feeling of relief but promptly crossed to another path on the other side of the island for a short distance.

After this our surroundings had even greater variety than those to which we had grown accustomed during the past few days. Bare valleys with high pinnacles of rock, bright ochre in one and flame-coloured in another, looked all the more grotesque in the mist as we wound our way through them—a valley of huge white boulders sitting on a dark grey floor. Suddenly we came to a patch of undulating moorland where grass and thistles

turned over a large boulder—and there they were, two of them, a male and a female. The spider of my dreams.

In that instant I pictured the Professor turning somersaults and Eric mimicking a shearwater as I gazed in silent admiration at these giants of their kind. Strong black legs dappled with startling white rings and spots were spread upward in a position of defiance and menace. Large shining black jaws were bared ready to plunge into any intruder. My trance was broken by the male's sudden dart to safety. The female, fighting every inch, was then forced into a net for transfer to a polythene bag.

Every third or fourth stone disclosed a spider beneath it. The females lived in roomy silk cells which they had occupied shortly before they had grown up. Into the silk walls they had woven the indigestible remains of all their feasts, which showed that their principal diet consisted of millipedes, large beetles and occasional cockroaches. They are night prowlers and seize their prey ferociously with their front three pairs of legs, each of which is equipped with a dense mat of blunt gripping hairs besides their terminal claws. Though lizards were plentiful there was no sign of any having fallen victims to the spiders.

By the time I had caught five males and fifteen females, some with white egg sacs attached to their spinnerets, Juan de Sã became restive, so we made our way back in swirling mist and rain showers. It was not until we reached our camp that I realised that the dreaded path had made little impact on my mind during the return journey. I even stopped to take photographs, and if Eric had been with me I believe I would have been singing.

For those interested in the antecedents of the spider, their use of cells in which to live suggest affinities with the genus Trochosa, but the absence of specially decorated front legs in the male, the mating habits and various structural details, deny them membership. Their non-addiction to life in burrows, the absence of jet black undersides and other structural features, make them uneasy members of the genera Lycosa, Hogna or Geolycosa. So perhaps these island hermits should found a new genus which we should call Deserta, in honour of their birthplace.



The valley of spiders



The Giant Wolf Spider

that I would bring them live specimens. I did more. I promised them champagne if I met with that amount of success.

After they had left, on our second evening, Richenda and I sat beside the cave admiring the vivid blue of the sea far below and spotting what we felt sure was a fleet of whales disporting themselves in the clear waters. Encouraged by Richenda, we both moved our bedding on to the ledge in front of the caves and prepared for sleep with our toes close to the cliff edge with nothing between them and America but thousands of miles of sea and sky. We awoke before sunrise with the intention of making an early start at 6 a.m. and found ourselves enveloped in dense wet cloud. Breakfast was prepared, but in daylight we

glistened with drops of moisture. This gave way to red desert with bright yellow layers of soil.

Once we found ourselves slithering on loose ground towards the obscured cliff edge and had to retreat to higher ground. From this narrow saddle we descended gently in a fresh direction and Juan de Sã led us triumphantly into a smooth-sided valley of high grass and herbs, with a small ruined observers' house in the centre. We had arrived.

This was a memorable moment for me. The terrain looked favourable at last. The spiders must be here. As this was their only place of refuge in the world they must be all around me under the loose rocks. Filled with tingling excitement we gently



Man's Span

Lines written by a hard-working medical man on attaining his 71st birthday

On reaching three score years and ten,
(Plus one, must be admitted)
I feel that to my scribbler's pen
Some licence is permitted.
I've done some good, I hope; I know
I've done some harm, and faltered;

And there are many deeds I trow,
I gladly would have altered.
I may not have achieved much fame,
Great honour, power, or pelf;
But, these apart, in Life's great game
I have enjoyed myself!

R.P.S.



Flamingoes on Lake Magadi

*Photograph by H. C. Preu
(Alkali Division)*

